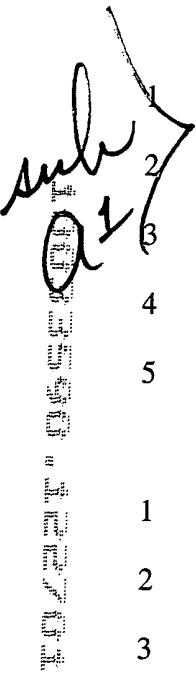


CLAIMS

WHAT IS CLAIMED IS:



1. A device comprising:
 - 2 an opto-electronic circuit fabricated a first substrate having conductive surfaces; and
 - 3 a package substrate coupled to the opto-electronic circuit at the conductive surfaces via solder bumps.
- 1 2. The device of claim 1, wherein the opto-electronic circuit further comprises:
 - 3 at least two planar waveguides; and
 - 4 a heating element coupled to at least one of the two planar waveguides, the heating element coupled to the package substrate via the solder bumps.
- 1 2. The device of claim 2 further comprising:
 - 3 a conductive strip on the package substrate coupling the heating element to the package substrate.
- 1 2. The device of claim 3 further comprising:
 - 3 a conductive pad on a side of the package substrate opposite the conductive strip, the conductive pad coupled to the conductive strip through a via, the conductive pad used to surface mount the package substrate.

1

5. The device of claim 2, wherein the package substrate comprises ceramic.

Concl'd
1
2
a2

1

6. The device of claim 2, wherein the heating element is coupled to the package

substrate at a first node and a second node of the package substrate.

2

7. The device of claim 6 further comprising:

3

a conductive strip attached to the first node and the second node of the
package substrate.

1

8. A method of making an opto-electronic device comprising:

2

aligning an opto-electronic circuit having a first plurality of electrical

3

contacts to a package substrate having a corresponding second plurality
of electrical contacts; and

4

bonding the opto-electronic circuit to the package substrate using solder
bumps.

1

9. The method of claim 8, wherein aligning the opto-electronic circuit further

2

comprises:

3

aligning a heating element of a thermo-optic switch with conductive strips of
4 the package substrate.

1

10. The method of claim 9, wherein bonding the opto-electronic circuit to the

2

package substrate further comprises:

3 bonding the heating element of the thermo-optic switch to the conductive
4 strips of the package substrate using solder bumps.

1 11. A method of operating a thermo-optic switch having a heating element, the
2 method comprising:

3 providing an electric current to the heating element through a first and
4 second solder bump nodes coupling the heating element to a package
5 substrate; and
6 causing an optical signal to change direction due to heating of the heating
7 element caused by the electric current.

1 12. The method of claim 11, wherein the electric current is provided to the
2 package substrate through surface mounted leads.

1 13. The method of claim 12 further comprising:
2 controlling the electric current by an electrical controller surface mounted to
3 a circuit board common with the package substrate.

1 14. The method of claim 12 further comprising:
2 controlling the electric current by an electrical controller mounted on the
3 package substrate.

1 15. A system comprising:
2 a thermo-optic switch surface mounted to a circuit board; and

3 an electrical controller surface mounted to the circuit board, the electrical
4 controller providing electrical signals to the thermo-optic switch
5 through the circuit board.

1 16. The system of claim 15, wherein the thermo-optic switch further comprises:
2 a first substrate having a heating element;

3 a second substrate, the heating element coupled to the second substrate via
4 solder bumps.

1 17. The system of claim 16, wherein the thermo-optic switch further comprises:

2 a waveguide in close proximity to the heating element, the waveguide
3 comprising a thermally sensitive material.

1 18. The system of claim 17, wherein the waveguide comprises silica on silicon.

*Add
A2*